

WHAT IS CLAIMED IS:

1           1. A fan array fan section in an air-handling system comprising:  
2           (a) at least three fan units;  
3           (b) said at least three fan units arranged in a fan array;  
4           (c) an air-handling compartment within which said fan array of fan units  
5           is positioned; and  
6           (d) an array controller for controlling said at least three fan units to run  
7           at substantially peak efficiency.

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1           2. The fan array fan section in an air-handling system of claim 1,

2 wherein said at least three fan units are plenum fans.

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1           3. The fan array fan section in an air-handling system of claim 1,

2 wherein said air-handling compartment has an airway path, said airway path being less  
3 than 72 inches.

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1           4. The fan array fan section in an air-handling system of claim 1,

2 wherein said at least three fan units are a plurality of fan units arranged in a fan array  
3 configuration selected from the group consisting of:

4           (a) a true array configuration;  
5           (b) a spaced pattern array configuration;  
6           (c) a checker board array configuration;  
7           (d) rows slightly offset array configuration;  
8           (e) columns slightly offset array configuration; and  
9           (f) a staggered array configuration.

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1           5. The fan array fan section in an air-handling system of claim 1,

2 wherein said at least three fan units are plenum fans include at least two vertically  
3 arranged fan units.

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1           6. The fan array fan section in an air-handling system of claim 1,  
2 wherein each of said at least three fan units is positioned within a fan unit chamber.  
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1           7. The fan array fan section in an air-handling system of claim 1,  
2 wherein each of said at least three fan units is suspended within a fan unit chamber  
3 such that there is an air relief passage therebelow.  
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1           8. The fan array fan section in an air-handling system of claim 1,  
2 wherein each of said at least three fan units is positioned within a fan unit chamber  
3 having at least one insulation surface.  
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1           9. The fan array fan section in an air-handling system of claim 1,  
2 wherein each of said at least three fan units are mounted in a grid system.  
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1           10. The fan array fan section in an air-handling system of claim 1,  
2 wherein each of said at least three fan units has a fan wheel diameter, wherein spacing  
3 between said at least three fan units is less than 60% of said fan wheel diameter.  
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1           11. A fan array fan section in an air-handling system comprising:  
2           (a) an air-handling compartment;  
3           (b) a plurality of fan units;  
4           (c) said plurality of fan units arranged in a fan array;  
5           (d) said fan array having at least one fan unit arranged vertically on at  
6           least one other fan unit.  
7           (e) said fan array positioned within said air-handling compartment.  
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1           12. The fan array fan section in an air-handling system of claim 11  
2 further comprising an array controller programmed to operate said plurality of fan units  
3 at peak efficiency.  
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1           13. The fan array fan section in an air-handling system of claim 11,  
2 wherein said plurality of fan units are plenum fans.

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1           14. The fan array fan section in an air-handling system of claim 11,  
2 wherein said air-handling compartment has an airway path, said airway path being less  
3 than 72 inches.

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1           15. The fan array fan section in an air-handling system of claim 11,  
2 wherein said plurality of fan units are arranged in a fan array configuration selected from  
3 the group consisting of:

4           (a) a true array configuration;  
5           (b) a spaced pattern array configuration;  
6           (c) a checker board array configuration;  
7           (d) rows slightly offset array configuration;  
8           (e) columns slightly offset array configuration; and  
9           (f) a staggered array configuration.

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1           16. The fan array fan section in an air-handling system of claim 11,  
2 wherein each of said plurality of fan units is positioned within a fan unit chamber.

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1           17. The fan array fan section in an air-handling system of claim 11,  
2 wherein each of said plurality of fan units is suspended within a fan unit chamber such  
3 that there is an air relief passage therebelow.

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1           18. The fan array fan section in an air-handling system of claim 11,  
2 wherein each of said plurality of fan units is positioned within a fan unit chamber having  
3 at least one insulation surface.

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1           19. The fan array fan section in an air-handling system of claim 11,  
2 wherein each of said plurality of fan units is mounted in a grid system.

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1           20. The fan array fan section in an air-handling system of claim 11,  
2 wherein each of said plurality of fan units has a fan wheel diameter, wherein spacing  
3 between said plurality of fan units is less than 60% of said fan wheel diameter.

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